

FORM PTO-1449  
(REV. 7-80)  
(Title Amended 3/83)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

135016-1

SERIAL NO.

10/718,003

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT--

LIST OF ITEMS

(Use several sheets if necessary)

Applicant

Ronald Scott Bunker et al.

Filing Date

November 19, 2003

Group

3746

## U.S. PATENT DOCUMENTS

EXAMINER TRA INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
AA						
AB						
AC						
AD						
AE						
AF						
AG						
AH						
AI						
AJ						
AK						

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	NO
AL							
AM							
AN							
AO							
AP							

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages, Etc.)

JK	AR	M. Ya Belen'kii et al., "Experimental Study of the Thermal and Hydraulic Characteristics of Heat-Transfer Surfaces Formed by Spherical Cavities," II. Polzunova Cent. Scientific Research, Translated from Teplotizika Vysokikh Temperatur, Vol.29, No.6, 1992 Plenum Pub. Corp., pp. 928-933.
JK	AS	Belen'kiy et al., "Heat Transfer Augmentation Using Surfaces Formed by a System fo Spherical Cavities," ISSN1064-2269/93/0002-0196, Heat Transfer Research, Vol. 25, No. 2, 1993, pp.196-203
JK	AT	Kesarev et al., "Convective Heat Transfer in Turbulized Flow Past a Hemispherical Cavity," Heat Transfer Research, Vol. 25, No. 2, 1993, pp. 156-160.

EXAMINER

DATE CONSIDERED

5/25/05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered.  
Include copy of this form with next communication to applicant.

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		Filing Date November 19, 2003	Group 3746		

## U.S. PATENT DOCUMENTS

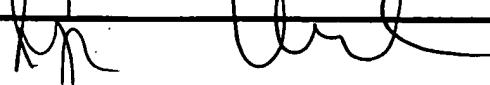
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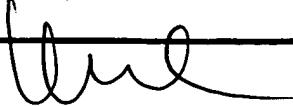
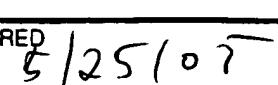
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	No
BL								
BM								
BN								
BO								
BP								

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages, Etc.)

JK	BR	N. Syred et al., "Effect of Surface Curvature on Heat Transfer and Hydrodynamics within a Single Hemispherical Dimple," Paper No. 2000-GT-236, Proceedings of ASME Turboexpo 2000, May 8-11, 2000, Munich Germany, pp. 1-6.
JK	BS	H. K. Moon et al., "Channel Height Effect on Heat Transfer and Friction in a Dimpled Passage," IGTI Turbo Expo, Paper No. 99-GT-163, Indianapolis, pp. 1-8
JK	BT	C. Carcasi et al., "Heat Transfer and Pressure Drop Evaluation in Thin Wedge-Shaped Trailing Edge," Paper No. GT-2003-38197, IGTI Turbo Expo, June 16-19 Atlanta, Georgia, pp. 111-122.

EXAMINER  DATE CONSIDERED 5/25/05

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U.S. PATENT DOCUMENTS								
EXAMINER INITIAL	DOCUMENT NUMBER			DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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	CJ							
	CK							
FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
	CL						YES	No
	CM							
	CN							
	CO							
	CP							
OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)								
JK	CR	M. K. Chyu et al., "Convective Heat Transfer of Cubic Fin Arrays in a Narrow Channel," Journal of Turbomachinery , April 1998, Vol. 120, pp. 362-367.						
JK	CS	N. Zhang et al., "Heat Transfer and Friction Loss Performance in Flow Networks with Multiple Intersections," Experimental Heat Transfer, Vol. 6, 1993. pp. 243-257.						
JK	CT	V. N. Afanas'Yev et al., "Thermohydraulics of Flow Over Isolated Depressions (Pits, Grooves) in a Smooth Wall," Heat Transfer Research, ISSN 1064-2285/93/0001-0022, Vol. 25, No. 1, 1993, pp. 22-56.						
EXAMINER 				DATE CONSIDERED  5/25/07				
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				Applicant  Ronald Scott Bunker et al.	
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(Use several sheets if necessary)					

U.S. PATENT DOCUMENTS													
EXAMINER INITIAL	DOCUMENT NUMBER			DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE					
JK	AA	6	6	0	7	3	5	5	08/19/03	Cunha et al.	—	—	
	AB	5	5	7	7	5	5	5	11/26/96	Hisajima et al.	—	—	
	AC	5	6	9	0	4	7	2	11/25/97	Lee	—	—	
	AD	6	5	0	4	2	7	4	01/07/03	Bunker et al.	—	—	
	AE	5	3	7	0	4	9	9	12/06/94	Lee	—	—	
	AF	6	4	0	2	4	7	0	01/11/02	Kvasnak et al.	—	—	
	AG	6	0	9	8	3	9	7	08/08/00	Glezer et al.	—	—	
	AH	3	6	6	4	9	2	8	05/23/72	Roberts	—	—	
	AI	4	6	9	0	2	1	1	09/01/87	Kuwahara et al.	—	—	
	AJ	3	2	2	9	7	6	3	01/18/66	Rosenblad	—	—	
JK	AK	3	8	9	9	8	8	2	08/19/75	Parker	—	—	

FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES      No
JK	AL	1 1 1 1 1 1 9 0	06/27/01	EP	—	—	
	AM	1 6 4 9 0 1 A	06/19/01	JP	—	—	
	AN	2 8 0 3 9 0	12/10/86	JP	—	—	
	AO	2 1 7 9 9 4	08/19/97	JP	—	—	
JK	AP	8 1 1 0 0 1 2	04/30/96	JP	—	—	

OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)							
JK	AR	Patent Application, Ronald Scott Bunker et al., Serial Number 10/462,755, filed June 6, 2002, Docket Number - RD29163.					
JK	AS	Patent Application, Ronald Scott Bunker, Serial Number 10/065,115, filed September 18, 2002, Docket Number - RD29461.					
JK	AT	US20030086785 A1, Bunker, "Cooling passages and methods of fabrication," Published 05/08/2003.					
EXAMINER						DATE CONSIDERED	5/25/05

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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE <small>(Title Amended 3/83)</small>							ATTY. DOCKET NO. <b>135016-1</b>	SERIAL NO.
							Applicant <b>Ronald Scott Bunker et al.</b>	
							Filing Date	Group
(Use several sheets if necessary)								

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER							DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
JK	BA	4	1	5	8	9	4	9	06/26/79	Reider	—	—	
	BB	4	8	3	8	0	3	1	06/13/89	Cramer	—	—	
	BC	4	1	8	4	3	2	6	01/22/80	Pane, Jr. et al.	—	—	
	BD	5	3	5	3	8	6	5	10/11/94	Adiutori et al.	—	—	
	BE	5	4	6	0	0	0	2	10/24/95	Correa	—	—	
	BF	5	6	5	1	6	6	2	07/29/97	Lee et al.	—	—	
	BG	5	7	5	8	5	0	3	06/02/98	DuBell et al.	—	—	
	BH	6	1	3	4	8	7	7	10/24/00	Alkabie	—	—	
	BI	6	2	3	7	3	4	4	05/29/01	Lee	—	—	
	BJ	6	3	3	4	3	1	0	01/01/02	Sutcu et al.	—	—	
JK	BK	6	4	0	8	6	2	9	06/25/02	Harris et al.	—	—	

## FOREIGN PATENT DOCUMENTS

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							YES	No
	BL							
	BM							
	BN							
	BO							
	BP							

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

JK	BR	US20030203259 A1, Bunker, "Fluid passages for power generation equipment," Published 10/30/2003.
JK	BS	Patent Application, Ronald Scott Bunker, Serial No.10/064,605, filed July 30, 2002, Document Number 124626.
JK	BT	Patent Application, Ronald Scott Bunker, Serial No. 10/065,495, filed October 24, 2002, Document Number RD29577.
EXAMINER		DATE CONSIDERED <i>Mr</i> 5/25/05

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## U.S. PATENT DOCUMENTS

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JK	CA	6	4	1	2	2	6	8	07/02/02	Cromer et al.	—	—	
	CB	6	4	9	4	0	4	4	12/17/02	Bland	—	—	
	CC	6	5	2	6	7	5	6	03/04/03	Johnson et al.	—	—	
	CD	5	3	6	1	8	2	8	11/08/94	Lee et al.	—	—	
	CE	5	4	2	1	1	5	8	06/06/95	Stenger et al.	—	—	
	CF	5	6	5	1	6	6	2	07/29/97	Lee et al.	—	—	
	CG	5	6	8	1	1	4	4	10/28/97	Spring et al.	—	—	
	CH	5	6	6	0	5	2	5	08/26/97	Lee et al.	—	—	
	CI	5	6	9	5	3	2	1	12/09/97	Kercher	—	—	
	CJ	5	7	2	4	8	1	6	03/10/98	Ritter et al.	—	—	
N	CK	5	7	3	8	4	9	3	04/14/98	Lee et al.	—	—	

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	CL							
	CM							
	CN							
	CO							
	CP							

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

JK	CR	Patent Application, Ronald Scott Bunker et al., Serial Number 10/162,756, filed June 6, 2002, Docket Number RD29188.
JK	CS	Patent Application, Ronald Scott Bunker, Serial Number 10/065,814, filed November 22, 2002, Docket Number RD29580.
JK	CT	Patent Application, Ronald Scott Bunker, Serial Number 10/301,672, filed November 22, 2002, Docket Number 120497.
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JK	DA	5 7 9 7 7 2 6	08/25/98	Lee	—	—	
	DB	5 8 2 2 8 5 3	10/20/98	Ritter et al.	—	—	
	DC	5 9 3 3 6 9 9	08/03/99	Ritter et al.	—	—	
	DD	5 9 7 5 8 5 0	11/02/99	Abuaf et al.	—	—	
	DE	6 1 9 0 1 2 0	02/20/01	Thatcher et al.	—	—	
	DF	5 4 0 2 4 6 4	03/28/95	Schenk et al.	—	—	
	DG	6 4 6 8 6 6 9	10/22/02	Hasz et al.	—	—	
	DH	1 8 4 8 3 7 5	03/08/32	Muir	—	—	
↓	DI	2 9 3 8 3 3 3	05/31/60	Wetzler	—	—	
	DJ						
	DK						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES      No
	DL						
	DM						
	DN						
	DO						
	DP						

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

JK	DR	Patent Application, Ronald Scott Bunker, Serial Number 10/065,108, filed September 18, 2002, Docket Number RD29153.
	DS	
	DT	

EXAMINER	<i>[Signature]</i>	<i>[Signature]</i>	DATE CONSIDERED	<i>5/25/02</i>
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EA									
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							YES	No
EL								
EM								
EN								
EO								
EP								

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages, Etc.)

J/K	ER	K. Takeishi et al., "Heat Transfer Characteristics Of A Flow Passage With Long Pin Fins And Improving Heat Transfer Coefficient By Adding Turbulence Promoters On A Endwall," Paper No. 2001-GT-178, IGTI Turbo Expo, New Orleans, pp. 1-12.
J/K	ES	S. Anzai et al., "Effect of the Shape of Turbulence Promoter Ribs on Heat Transfer and Pressure Loss Characteristics", Bulletin of the Gas Turbine Society of Japan, 1992.
J/K	ET	

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							YES	No
	DL							
	DM							
	DN							
	DO							
	DP							

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages, Etc.)

JK	DR	V. N. Afanas'yev et al., "Heat Transfer and Friction on Surfaces Contoured by Spherical Depressions," Heat Transfer Research, Vol. 24, No. 1, 1992, pp. 24-105.
JK	DS	V. N. Afanasyev et al., "Turbulent Flow Friction and Heat Transfer Characteristics for Spherical Cavities on a Flat Plate," Experimental Thermal and Fluid Science, 1993, Vol. 7, pp. 1-8.
JK	DT	D. E. Metzger et al., "Developing Heat Transfer in Rectangular Ducts with Staggered Arrays of Short Pin Fins", Journal of Heat Transfer, Vol. 104, November 1982, pp. 100-706.

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